

The Future of AI Bioethics in the Context of Human Survival

Dobrodum Olga Victorivna E-mail: dobrodum.olga@gmail.com DSc in Philosophy, Professor, State University of Commerce and Economics, (Kyiv, Ukraine) Martinuk Eduard Ivanovich E-mail: eduardmartinuk@ukr.net PhD of Philosophy, Associate Professor, Odesa Polytechnic National University, (Odesa, Ukraine) Nykytchenko Olena Eduardivna E-mail: olena.ed.nykytchenko@gmail.com PhD of Philosophy, Associate Professor, Odesa Polytechnic National University (Odesa, Ukraine)

ABSTRACT

The article delves into the future of bioethics in AI, emphasizing the growing importance of ethical principles in the field. As AI increasingly integrates into various aspects of life, bioethics faces new challenges, particularly in establishing ethical standards for AI decisions. The article recommends that international standards and legislative frameworks be established to regulate the use of AI, prevent exploitation, and benefit society. It also emphasizes the importance of informing the public and professionals about the benefits and risks of AI. The article concludes that the inter–linkage of bioethics and AI will require the establishment of effective ethical frameworks, education, and public engagement.

KEYWORDS: future, AI, bioethics, personality, humanity

Received : 21/07/2024 Revised : 25/07/2024 Accepted : 31/07/2024

1.Formulation or the problem. In recent years, Artificial Intelligence (AI) has become an integral part of many aspects of our lives, from healthcare to workflow automation, but as its influence grows, so does the need for ethical principles to govern the field. Statistics on the adoption of AI in healthcare can be cited: according to a 2019 McKinsey Global Institute report, AI could potentially save up to US\$960 billion in annualised healthcare savings by 2030 (Ellingrud et al (Eds). (2023), the AI in healthcare market is expected to reach US\$60.4 billion by 2025 (AI in, 2023). A 2020 PwC study found that 80% of hospitals are already using or planning to use AI (Artificial Intelligence, 2022). This data indicates that AI is rapidly becoming an important part of medicine and has the potential to significantly improve the quality and accessibility of care. It is important to note that the adoption of AI in medicine comes with a number of challenges, such as ethical issues, data privacy, and potential job losses. These issues need to be carefully addressed to ensure the safe and ethical use of AI in medicine. The development of AI in medicine has been rapid and covers many areas. AI is being used to improve diagnosis, personalise treatment, develop new drugs and optimise healthcare management. Some examples of applications of AI in medicine include: disease diagnosis, personalised treatment, new drug development, and health monitoring. AI in medicine continues to evolve, offering new opportunities to improve the quality of healthcare services and increase the efficiency of healthcare (WHO issues, 2021)

Bioethics, which studies issues at the intersection of life, health and morality, is facing new challenges due to the development of AI, one of the main issues is the question of what ethical standards should be applied to AI, especially when it comes to making decisions that affect human life. For example, in medicine, AI algorithms can assist in diagnosis and treatment, but what if the system makes a mistake - who will be held responsible and how can we ensure that AI does not reinforce existing biases and injustices? Four traditional principles of bioethics can be applied to address these questions: respect for autonomy, non-harm, beneficence and justice. These principles can serve as the basis for the creation of ethical guidelines for AI, ensuring that technologies serve the human interest and do not violate human rights and dignity, there is also a need to develop international standards and legislative frameworks that will regulate the use of AI - this will help prevent abuse and ensure that AI is used for the benefit of society. Educating professionals and the general public about the opportunities and risks associated with AI is also an important aspect - understanding the ethical aspects will help people better adapt to the changes this technology brings. As AI develops, there is a need to adapt existing ethical theories: traditional approaches such as deontology, utilitarianism and virtuality can be reinterpreted for application in the context of AI - this will create a deeper understanding of how AI can and should interact with human values (Donnikova, 2023).

Al bioethics represents one of the most pressing and complex issues of our time, and with Al in medicine and biology, new ethical dilemmas are emerging that require international co-operation and the development of common standards. Among the key aspects of the international perspective on AI bioethics are the following: the global nature of the problems, as the development of AI knows no borders, so the ethical issues related to its application in biomedicine are global in nature; the diversity of cultural and legislative contexts, as different countries have different cultural values, legislative systems and approaches to ethical issues, which creates difficulties in developing common international standards;

the need for international co-operation, as the use of AI in medicine and biology is a major challenge for the international community; and the need for international co-operation. It is important to identify the main challenges and areas of work, among them: data privacy, accountability, biased algorithms, accessibility and social inequality. Let us name a few major international organisations and initiatives regulating bioethics issues: UNESCO (developed the Universal Declaration on Bioethics and Human Rights, which serves as a basis for international cooperation in the field of bioethics), OECD (develops recommendations on the ethical use of AI), International Society of Bioethics (unites scientists and specialists in the field of bioethics to discuss topical issues and develop recommendations).

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> Bioethics in a religious context covers many complex and controversial issues related to the moral and spiritual dimensions of biomedical technologies and practices - here are a few key topics: euthanasia and abortion, genetic research and modification, organ donation, artificial insemination and surrogacy, pandemics and vaccination. The information technology aspect of bioethics in a religious context covers many issues related to the use of modern biomedical technologies and their moral and ethical implications, among them: IVF and transplantation, nanotechnology and biomedicine, digital medicine and telemedicine, AI in medicine, biometrics, cybersecurity in healthcare, and electronic medical records (The development of AI may give new impetus to transhumanist and posthumanist ideas, as well as lead to new ethical dilemmas related to the modification of the human body and mind (Chornomordenko, 2022). Virtualisation and online in the context of bioethics and religion covers a variety of issues related to the use of modern information technologies and their moral and ethical implications, for example: virtual religious communities, virtual reality in religious practices, digital content ethics, cybersecurity of religious data, online religious services and communities, online bioethics education, data privacy and security, digital content ethics (See: Dobrodum O.V., 2024). These topics require an interdisciplinary approach that includes the views of physicians and lawyers, philosophers and religious scholars to balance scientific progress and moral values (Medical Ethics, 2024).

> **2.Analysis of recent research and publications.** There are many scientists and researchers working in the field of AI bioethics who have made significant contributions to the discipline. Here are some scientists who are actively involved in AI bioethics: James Shaw, Joseph Ali, Caesar A. Atuire, Phaik Yong Chea, Effie Wayena, Eugenius Gefenas, Olga Kharaskhal, Yaroslav Hnilitsky, Andriy Matviychuk, Serhiy Danilov and Viktor Komarenko, and Anton Kobyliansky. These scientists and many others continue to work on the development of AI bioethics to ensure safe and fair use of the technology in the future. Examples of successful initiatives and organisations: The Ethics of AI in Healthcare Project, The Center for Bioethics at Harvard Medical School, The Global Network of AI Ethics, The National Institutes of Health, The World Commission on the Global Ethics of AI. When discussing existing approaches to addressing ethical issues, it should be noted that the World Health Organisation has developed guidelines on AI ethics in healthcare, which are a set of recommendations for developers, users and policy makers in the field of AI, the US National Institute of Health has established a working group on ethics, law and society to investigate the ethical aspects of the use of AI in biomedical research, the European Union has adopted the General Regulation on the Protection of Human Subjects in Biomedical Research.

3.The purpose of the article. The purpose of the article is to analyse possible options for the future of bioethics in the field of AI in the context of human survival

4. Presentation of the main material. In today's world, where science and technology are advancing at an unprecedented rate, bioethics faces a number of new challenges that require careful consideration and reflection. For example, CRISPR-Cas9, a gene editing tool, can be used to correct genetic defects that cause disease, but editing the human genome may entail unknowable side effects, unequal access to technology, misuse of genetic engineering to create 'designer babies', and even exacerbation of social inequalities, emergence of new genetic diseases, and loss of the value of human uniqueness. AI systems can be used to diagnose diseases based on medical images, but AI in medicine can expose problems such as algorithmic bias, liability issues for AI errors, limitation of patient autonomy, and lead to discrimination in medical care, unreasonable AI decisions, and loss of trust in the medical system. It should be noted that neurointerfaces can be used to control prostheses or to treat neurological diseases, however, on the other hand, neurointerfaces can be hacked, which can lead to identity theft or manipulation of human consciousness, they can lead to violation of privacy of thoughts, mind control, use of neurotechnology for military purposes, with the consequence of loss of control over one's own life, mass surveillance, manipulation of public consciousness. Life extension, on the other hand, implies the development of new therapies that can slow or even reverse aging, but it can also lead to overpopulation, lack of resources, ethical dilemmas associated with artificial life extension, and can have the consequence of exacerbating social problems, unequal access to life extension technologies, and loss of meaning in life (See: Philosophy, 2021). And, for example, cryopreservation involves freezing a person's body after death in the hope of future resurrection, but can expose problems of uncertainty about the possibility of resuscitation, ethical issues in the treatment of 'frozen' people, commercialisation of cryopreservation, in turn exploiting unfounded hopes of immortality, exploitation of the human body, and dehumanisation (International Bioethics, 2013).

It is important to note that these are just some of the new challenges that bioethics faces – there is a need for an open and honest debate on these issues in order to develop ethical norms and principles that will advance science and technology for the benefit of human beings. In addition to the above examples, there are other challenges such as: developing ethical principles and guidelines, raising awareness and education, ensuring accountability and oversight, protecting data privacy, promoting inclusion and justice, the use of biological data for commercial purposes, ethical issues related to organ transplantation, issues related to euthanasia and artificial insemination, genetic technologies and genome editing, AI in medicine, biobanks and storage of g of genome. All of these challenges require careful consideration and informed decisions, and ignoring them may lead to serious negative consequences, including violations of human rights, increased social inequalities and undermining trust in scientific research, so it is important to continue to discuss and develop ethical norms and standards in these areas.

Examples of successful initiatives and organisations working in this area include the World Health Organisation (WHO), which has developed guidelines on the ethics of AI in healthcare, the US National Institute of Health (NIH), which has established a working group on the ethics of AI in medicine, Neuroethics 21 - A non-profit organisation dedicated to exploring the ethical aspects of neurotechnology, the International Society for Bioethics (ISB), which conducts research and organises

conferences on ethical issues related to AI in medicine, the Hastie Foundation. Approaches to addressing ethical issues related to AI in medicine: development of ethical guidelines and standards (e.g. the WHO has issued guidelines on the ethics and governance of AI in health care that include six core principles: protecting human autonomy, promoting well-being, ensuring justice, preventing harm, ensuring transparency and accountability, UNESCO has developed recommendations on the ethical aspects of AI that aim to ensure respect for human dignity and human rights. The European Commission has developed 'Ethical Guidelines for Trustworthy AI' which include requirements for transparency, security and data privacy, Babylon Health has developed an AI that provides health information based on a patient's symptoms and assists in medical triage by identifying which patients need urgent care, the programme has been successfully used in the UK and other countries, improving access to healthcare services and reducing the burden on doctors), and the establishment of ethics committees and working groups is also worth noting.

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> In addition to these examples, there are many other organisations and initiatives that are working to address the ethical issues surrounding AI in medicine. It is important to note that this is a complex and constantly evolving field, and that there is no one-size-fits-all solution to all ethical issues - ongoing collaboration between experts in different fields is needed to ensure ethical and responsible use of AI in medicine. Bioethics, as a field of knowledge dedicated to the study of ethical aspects of biology and medicine, is playing an increasingly important role in the era of rapid development of AI, especially in the field of medicine. AI has great potential to improve the quality of care, accessibility and efficiency, and can help ensure that AI is used ethically and responsibly to maximise its benefits and minimise its risks. The development of AI bioethics may lead to new areas of research and educational programmes, as well as the creation of new jobs. It is important to note that AI bioethics is at an early stage of development and has a long way to go. However, given the scope and speed of change in this field, it is safe to say that AI bioethics will play an increasingly important role in shaping the future of medicine and technology. The prospects for AI bioethics depend on continued international co-operation, the development of ethical standards and awareness-raising - these efforts will help to create a safe and fair environment for the use of AI in medicine, ultimately leading to better healthcare services and the protection of patients' rights.

> Undoubtedly, AI has the potential to significantly change the nature of doctor-patient interactions, among the positive changes: increased efficiency, improved diagnosis, personalised approach, increased accessibility, among the negative ones: depersonalisation, AI errors, privacy issues, reduced physician autonomy, debatable issues: transparency, accountability, accessibility, bias. It is important to note that AI is a tool, and like any tool, it can be used for good or for bad, and the future of the doctor-patient relationship will depend on how we use AI – there needs to be an open and honest discussion about the ethical issues surrounding AI in medicine to develop principles and rules that will improve the quality of care and maintain trust between doctor and patient. AI is significantly changing the nature of doctor-patient interactions, among key aspects: improved diagnosis and treatment, personalised treatment, automation of routine tasks, respectively, among ethical issues: data privacy, liability for errors, bias of algorithms (The frontier, **2023**)

In all likelihood, AI has the potential to significantly improve the quality of healthcare services, but it is important to consider and address emerging ethical issues, international co-operation and the development of ethical standards will help to ensure fair and safe use of AI in medicine, ultimately leading to improved doctor-patient relationships and better quality of care. The introduction of AI in medicine could have far-reaching social and economic consequences, among the positive consequences are increased access to care, reduced cost of care, improved quality of care, job creation, among the negative consequences: increased unemployment, worsened inequalities, ethical issues – confidentiality, liability and bias (Grebenshchikova, Chuchalin, 2022; Research, 2024).

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In the end, AI can make telemedicine more accessible, especially for people living in rural areas or with limited mobility: AI systems can be used to diagnose diseases and prescribe medication, which can reduce the workload of doctors and make medical care more accessible in areas with a shortage of specialists, AI can be used to create virtual medical assistants that can answer patients' questions and provide them with information about their health status. AI can help allocate medical resources such as equipment and staff more efficiently: AI systems can be used to forecast demand for medical services, which can help hospitals and clinics better plan their resources, AI can be used to develop new treatments that may be more affordable than existing treatments. On the other hand, AI could lead to job losses in some areas of healthcare, such as record keeping and analysing research results, but AI could also lead to job creation in areas such as AI systems development and maintenance, data analysis and medical ethics. It is important to note that the impact of AI on healthcare employment will depend on how AI is implemented and utilised.

It is important to carefully consider the potential social and economic impacts of AI in medicine before introducing this technology, measures need to be developed to minimise negative impacts and maximise potential benefits, and it is essential to ensure that AI is used in medicine in an ethical and responsible manner. The introduction of AI in medicine has a significant impact on various aspects of healthcare including access to care, resource allocation and employment rates, telemedicine, efficiency of the healthcare system, a positive feature here could be the optimisation of resources, a potential problem is digital inequality (Jones , 2023).

AI frees healthcare professionals from routine tasks, allowing them to focus on more complex and important aspects of work, the development of AI requires new specialists such as data engineers and algorithm developers, at the same time, automation can lead to job cuts, especially in areas related to routine tasks, and healthcare professionals will need to be retrained to work with new technologies, which can be costly and time consuming (How AI, 2023).

Of course, the introduction of AI into medicine has both positive and negative implications, so it is important to consider ethical and social aspects to minimise the risks and maximise the benefits of the technology. International co-operation and the development of ethical standards will help to ensure the fair and safe use of AI in healthcare.

The need to establish a dialogue between experts in AI, bioethics, medicine, law and other stakeholders is based on the following key factors: complexity and multifaceted problems, ethical dilemmas, data privacy, liability, biased algorithms, accessibility, social inequality, rapid pace of development, global nature of problems, social consequences. Among the goals of the dialogue are:



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6.Conclusions.Discussing the prospects for the development of bioethics in the field of AI, we can assume the creation of international ethical committees to assess risks and develop recommendations on the use of AI in biomedicine, the development of international standards to ensure the safety and efficacy of AI technologies, education and awareness-raising in order to carry out a broad educational work among professionals and the public on the issues of AI bioethics, and inter-sectoral cooperation to solve complex problems associated with the development of AI. AI bioethics is an interdisciplinary field requiring an integrated approach. International co-operation and the development of Common ethical principles are key factors to ensure the safe and responsible development of AI technologies in biomedicine. Additional research topics include: the role of the state in regulating the development of AI in biomedicine, ethical aspects of the use of AI in genetics and reproductive medicine, legal aspects of liability for harm caused by AI systems, social consequences of the widespread introduction of AI in healthcare.

The future of bioethics in AI is closely linked to the future of the development and application of this technology in medicine. Bioethics should play a proactive role in ensuring that AI is used ethically and responsibly so that it benefits all of humanity without violating fundamental human rights and freedoms. The next steps in this direction could be: the need to conduct more research on the ethical aspects of AI in health care, the need to raise public awareness of the ethical aspects of AI in health care, and the need to promote the use of AI in health care. AI systems will play an increasingly important role in disease diagnosis, drug development, personalised medicine and surgery. With the development of AI in medicine, new bioethical issues will arise, such as: patient data privacy, biases in AI algorithms, liability issues for AI decisions, and the impact of AI on patient autonomy and dignity. Bioethics should play a leading role in developing ethical principles and guidelines for the development and use of AI in medicine – these principles should be based on respect for human dignity, human rights, justice, non-harm and good (Bioethics and Biosafety, **2017**).

It is necessary to create a dialogue between AI experts, bioethics, medicine, law and other stakeholders, conduct more research on the ethical aspects of AI in medicine, raise public awareness of ethical issues related to AI in medicine, develop guidelines for the development and use of AI in medicine, ensure strong protection of patient data used in AI systems, combat biases in AI algorithms so that they do not discriminate against humans. It is necessary to clearly define who is responsible for decisions made by AI systems in medicine, to respect patients' autonomy and their right to participate in decisions related to their health, to protect human dignity from manipulation or control by AI systems, to ensure fair access to AI technologies in medicine for all people regardless of their income, place of residence or other factors, to educate health care providers and other professionals on the ethical aspects of the use of AI in medicine, to ensure the participation of publicly. The development of AI may give new impetus to transhumanist and posthumanist ideas, as well as lead to new ethical dilemmas related to the modification of the human body and mind (Dobrodum, 2021).

It is necessary to develop measures for social protection of people who may be affected by the introduction of AI in medicine and to ensure access to this technology for all people, regardless of their social status and financial status, emphasise the need for ethical monitoring of AI in medicine. This means continuously monitoring the impact of AI on people's health, well-being and rights and developing methods to identify and address potential ethical risks associated with the use of AI. Bioethics in AI is a rapidly evolving field that requires attention from scientists, lawyers, policy makers and the public. In order for bioethics to remain relevant in the context of AI, it is necessary to integrate ethical principles directly into the process of technology development and use – this means that AI developers must be trained not only in technical skills, but also in the basics of ethical analysis. Transparency in AI algorithms and the ability to explain the decisions they make is becoming increasingly important, which will help establish accountability for AI actions and ensure user trust. Including the public in ethical discussions about AI will allow for a better understanding of societal expectations and concerns, and an open dialogue between developers, users and regulators fosters ethical standards that reflect the values of society as a whole (UNESCO, **2021**).

In the future, we can expect bioethics to play an even more significant role in the development of AI, and as technologies become more complex and autonomous, the importance of ethical regulation will only grow. New professions, such as ethical counsellors for AI, may emerge to help companies navigate the complex world of technological ethics. Bioethics and AI are two fields that will become increasingly intertwined in the future, and the creation of effective ethical frameworks and standards, education and public engagement are key steps towards the harmonious coexistence of man and machine. The future of AI thus requires an integrated approach that takes into account rapid technological change, social and cultural implications, as well as deep ethical issues – this requires co-operation between technical experts and ethicists, legal scholars and the general public. This is the only way to ensure that advances in AI will serve to improve the quality of life and well-being of humanity.



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